

IMPORTANT BIRD AND BIODIVERSITY AREAS IN INDIA

Priority sites for Conservation

Revised and updated 2nd Edition Vol. II



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Priority sites for conservation

**Second Edition: Revised and Updated
Volume II**

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With major sponsorship from
Pavillion Foundation, Singapore

Recommended citation:

Rahmani, A.R., Islam, M.Z. and Kasambe, R.M. (2016) Important Bird and Biodiversity Areas in India: Priority Sites for Conservation (Revised and updated). Bombay Natural History Society, Indian Bird Conservation Network, Royal Society for the Protection of Birds and BirdLife International (U.K.). Pp. 1992 + xii

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Bombay Natural History Society in India is registered under Bombay Public Trust Act 1950: F244 (Bom) dated 06th July 1953.

ISBN: 978-93-84678-02-9

Cover Photographs: Design and collage by Gopi Naidu conceptualized by IBA Team.

First published: 2004 by IBCN: Bombay Natural History Society.

Second Revised Edition: 2016.

Printed by Akshata Arts Pvt Ltd. 22, A to Z Industrial Estate, G. Kadam Marg, Lower Parel, Mumbai 400 013. Published by the Bombay Natural History Society, Hornbill House, Shaheed Bhagat Singh Road, Mumbai 400 001.

Designed: V. Gopi Naidu.

Available from IBCN and BNHS website as given above.

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PUNJAB

IN-PB

AJITH DESHMUKH



Punjab is an intensively cultivated state with very little natural forests left. However, it still has some wetlands. All the four IBAs, three of them being Ramsar Sites, have been identified based on waterbirds

Punjab (29° 33'–32° 32' North and 73° 53'–76° 56' East) has a geographical area of 5.04 million ha and is situated in the northwestern part of the country. It is broadly divided into three physiographic regions, namely the mountainous Himalaya, the sub-mountainous Himalaya and the alluvial plains. The important rivers draining the State are the Sutlej and the Beas.

Punjab is considered as the wheat bowl of India, a State where India's Green Revolution started. It is an intensively cultivated State through canal irrigation and/or through underground water. The underground water table has dropped in the recent decades. The use of fertilizers and pesticides is very high. The average annual rainfall varies between 400 to 600 mm and the temperature ranges from 2 °C to 45 °C. The population of the State is 27.74 million (2011 census). The urban population is 37.49% and the rural population is 62.51% of the total population of the State. The population density is 551 persons per sq. km. The livestock population is 7.41 million (as per 18th livestock census), largely stall-fed.

Vegetation

The recorded forest area of the State is 3084 sq. km which constitutes 6.12% of the geographical area. By legal status, Reserved Forest constitutes 1.42%, Protected Forest 36.86% and Unclassed Forest 61.72%. There are three forest types, namely Tropical Dry Deciduous, Subtropical Dry Evergreen and Tropical Thorn Forest.

IBAs AND PROTECTED AREAS

The State has 11 wildlife sanctuaries spread over 31,779 ha constituting 0.63% of the geographical area. Four sites have been identified as IBAs.

THREATENED AND NOTEWORTHY SPECIES OF PUNJAB

White-rumped Vulture *Gyps bengalensis* Critically Endangered

This Vulture has been graded as Critically Endangered because it has suffered an extremely rapid population decline, particularly across the Indian subcontinent (BirdLife International 2001). In Punjab, this bird was abundant 5-10 years ago (Grubh 1983), but now it is extremely rare.

White-headed Duck *Oxyura leucocephala* Endangered

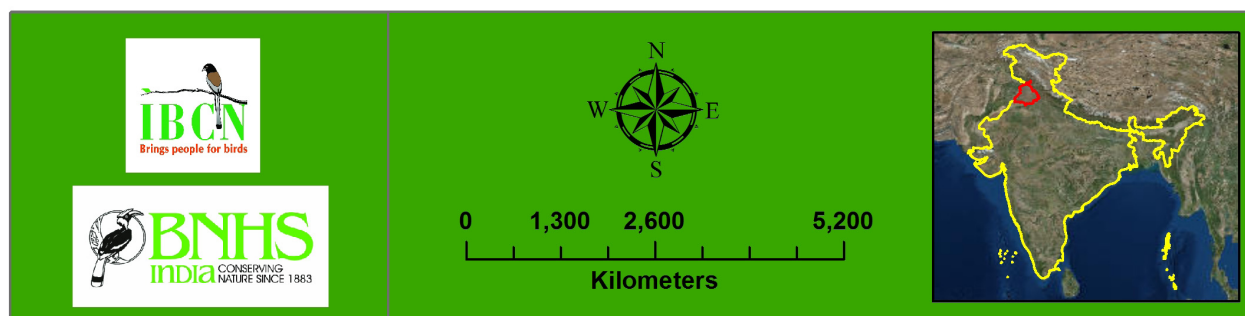
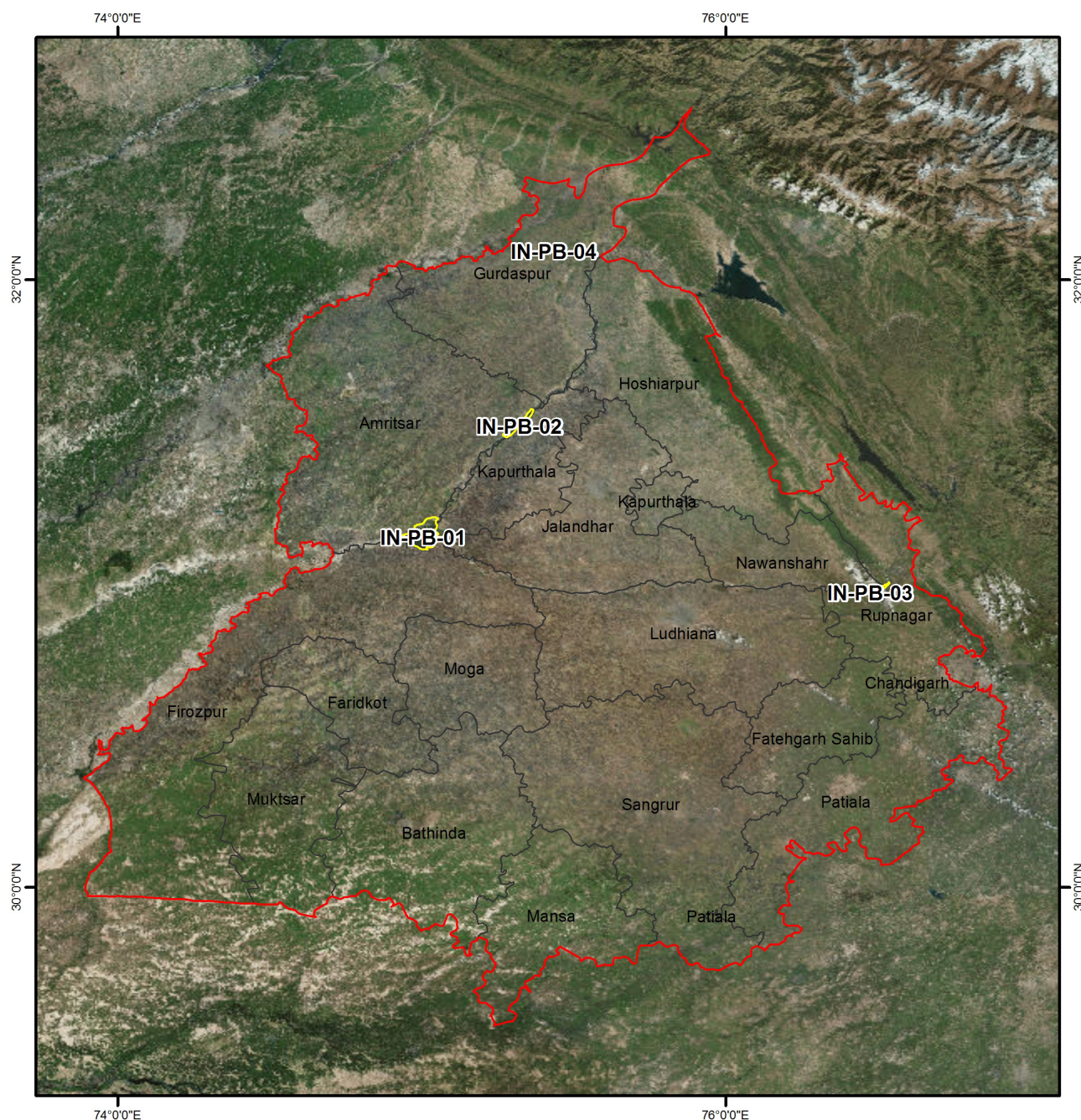
This Duck is very rare in India. It was reported in the Harike Lake Wildlife Sanctuary in September 1984 (BNHS ringing data) (Singh 1993).

Greater Spotted Eagle *Clanga clanga* Vulnerable

This Eagle too is a rare winter visitor and was recorded in the Harike Lake Wildlife Sanctuary in 1981 (Ali *et al.* 1981). It is now termed as *Clanga clanga*.

Important Bird Areas in Punjab

IN-PB





Harike reservoir is man-made. Its margins are fringed with tall wet grasses where Jerdon's Babbler *Chrysomma altirostre*, is found

Eastern Imperial Eagle *Aquila heliaca*
Vulnerable

This bird is a migratory winter visitor. It was recorded from the Harike Lake Wildlife Sanctuary in 1981 (Ali *et al.* 1981), and six birds were recorded in February-May 1994 (P. Undeland *in litt.* 1995)

Pallas's Fish-Eagle *Haliaeetus leucoryphus*
Vulnerable

This eagle is also rare in Punjab but was recorded in May–July 1982 in the Shivalik range and Harike Lake Wildlife Sanctuary (Ali *et al.* 1981).

Indian Skimmer *Rynchops albicollis*
Vulnerable

This bird was reported residing in a colony near the Harike Lake Wildlife Sanctuary (Ali *et al.* 1981), where a maximum of 43 individuals was recorded during the period of 1983 to 1994 (P. Undeland *in litt.* 1995), 51 individuals in March 1995 (Crosby 1995, P. Undeland *in litt.* 1995) and 70 individuals in July 1995, of which 34 were adults and 36 juveniles (Robson 1996).

Eastern Stock or Yellow-eyed Pigeon
Columba eversmanni
Vulnerable

A maximum of c.800 was reported in the Harike Lake

Wildlife Sanctuary in 1995 (P. Undeland *in litt.* 1995, Crosby 1995), and c.2000 were reported in 1996–1997 (Robson 1997: 61–69, P. Undeland *in litt.* 1997). This species has declined rapidly in the recent past, probably as a result of changing agricultural practice and hunting in its wintering grounds (BirdLife International 2014).

Bristled Grassbird *Chaetornis striata*
Vulnerable

A pair apparently breeding near the Harike Lake Wildlife Sanctuary was reported in August 1997 (Kazmierczak *et al.* 1998).

Kashmir Flycatcher *Ficedula subrubra*
Vulnerable

One male flycatcher was seen in September 1998 in or near Harike Lake Wildlife Sanctuary (Robson 1999).

Jerdon's Babbler *Chrysomma altirostre*
Vulnerable

Jerdon's Babbler *Chrysomma altirostre* has been found in the Harike Lake in long and dense grasslands, mainly *Phragmites* sp. and *Saccharum* sp. Sawant and Sudhagar (2013) recorded 33 individuals, which suggests that Harike Wetland could have a significant population of this species. The subspecies *C. a. indicum* is found there. BirdLife International (2014) states that this species is likely to be in

LIST OF THREATENED BIRDS WITH IBA SITE CODES

CRITICALLY ENDANGERED		
White-rumped Vulture	<i>Gyps bengalensis</i>	IN–PB–01, 04
Slender-billed Vulture	<i>Gyps tenuirostris</i>	IN–PB–01
Red-headed Vulture	<i>Sarcogyps calvus</i>	IN–PB–01
ENDANGERED		
White-headed Duck	<i>Oxyura leucocephala</i>	IN–PB–01
Egyptian Vulture	<i>Neophron percnopterus</i>	IN–PB–01, 4
VULNERABLE		
Lesser Adjutant	<i>Leptoptilos javanicus</i>	IN–PB–01
Asian Woollyneck	<i>Ciconia episcopus</i>	IN–PB–04
Long-tailed Duck	<i>Clangula hyemalis</i>	IN–PB–01
Pallas's Fish-Eagle	<i>Haliaeetus leucoryphus</i>	IN–PB–01
Greater Spotted Eagle	<i>Clanga clanga</i>	IN–PB–01, 04
Eastern Imperial Eagle	<i>Aquila heliaca</i>	IN–PB–01
Indian Spotted Eagle	<i>Aquila hastata</i>	IN–PB–04
Sarus Crane	<i>Grus antigone</i>	IN–PB–04
Yellow-eyed Pigeon	<i>Columba eversmanni</i>	IN–PB–01
Indian Skimmer	<i>Rynchops albicollis</i>	IN–PB–01
Bristled Grass-Warbler	<i>Chaetornis striatus</i>	IN–PB–01
Kashmir Flycatcher	<i>Ficedula subrubra</i>	IN–PB–01
Jerdon's Babbler	<i>Chrysomma altirostre</i>	IN–PB–01
NEAR THREATENED		
Oriental Darter	<i>Anhinga melanogaster</i>	IN–PB–01, 04
Painted Stork	<i>Mycteria leucocephala</i>	IN–PB–01, 04
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	IN–PB–01
Black-headed Ibis	<i>Threskiornis melanocephalus</i>	IN–PB–01,04
Ferruginous Duck	<i>Aythya nyroca</i>	IN–PB–01,02, 04
Pallid Harrier	<i>Circus macrourus</i>	IN–PB–01,04
Black-tailed Godwit	<i>Limosa limosa</i>	IN–PB–04
Rufous-vented Prinia	<i>Prinia burnesii</i>	IN–PB–01
Alexandrine Parakeet	<i>Psittacula eupatria</i>	IN–PB–04
IBAs of Punjab		
IBA site codes	IBA site names	IBA criteria
IN –PB–01	Harike Lake Bird Sanctuary	A1, A4i, A4iii
IN–PB–02	Kanjli Lake	A4i, A4iii
IN–PB–03	Ropar Lake	A4 (Data Deficient)
IN–PB–04	Keshopur	A4i, A4iii

rapid decline as a result of the extensive loss of its tall, wet grassland habitat, primarily owing to drainage, conversion to cultivation, and grazing by domestic livestock.

SOME NEW BIRD RECORDS FOR PUNJAB

Long-tailed Duck *Clangula hyemalis*

Prasad (2008a) sighted a duck during birdwatching, which he could not recognize. Hence he drew sketches of the bird and made notes describing the bird. Later on, comparing both his sketch with the field guide, he concluded it to be Long-tailed Duck. This species is classified as Vulnerable due to its declining population (BirdLife International 2014).

Horned Grebe *Podiceps auritus*

Prasad (2008b) recorded two grebes at Harike lake in Punjab. Based on his descriptive points following the sighting such as ruby eye, longer neck as compared to Black-necked Grebe, pale lores, pattern on the hood and the dark upper-side to the bill, he concluded the bird must be Horned Grebe.

Common Goldeneye *Bucephala clangula*

Sangha (2013) sighted a duck in flight at Kot Qaim Khan village on the boundary of Harike Lake Bird Sanctuary and identified it as Common Goldeneye. This was the first record of this bird for Punjab.



More than 20,000 waterbirds are found in the Harike Lake, sometimes flocks of 2,000–3,000 Red-crested Pochard *Rhodonessa rufina*, Common Pochard *Aythya ferina*, and Tufted Pochard *Aythya fuligula* are not uncommon. Hundreds of Bar-headed Goose *Anser indicus* (above) are regularly found

THREATS AND CONSERVATION ISSUES

Punjab is a very thickly populated agriculture state where natural vegetation has disappeared under the plough. This state is one of the highest consumers of pesticides and fertilizers. Owing to intensive cereal cultivation such as wheat and rice, ground water is depleted, resulting in demand for more canal water. Punjab is basically a semi-arid state, with annual rainfall of up to 600 mm. So there is not much rainwater to allow rice and sugarcane cultivation. Nonetheless, cultivation of such crops is expanding even to those areas where intensive irrigation cultivation is not recommended due to edaphic factors. Due to depletion of ground water resources and deterioration of soil productivity, farmers now go for high doses of fertilizers and pesticides, resulting in temporarily high agriculture produce but long-term deterioration of farmland. All these factors have impact on bird life. Not much work has been done on the pesticide loads in bird. Moreover, there is no monitoring of farmland birds, so we do not know how they are faring.

Harike Lake Wildlife Sanctuary is spread over the alluvial plains comprising 33 small lakes, while Kanjli Lake which is about 20 km from Harike Lake also falls in this area. Ropar Lake is another congregatory site identified in Punjab. All these sites are infested with the invasive weed *Eichhornia crassipes*. Eradication has been attempted but without success, as fresh infestation takes place from upstream.

Another major problem is that of siltation. The problem of soil erosion is acute in the catchment areas causing the wetland to silt up rapidly. Urban and industrial development in the vicinity of these lakes and along feeder streams is polluting lake water. Most of the catchment areas are under cultivation, and the use of fertilizers and pesticides is contributing to the pollution load. All these wetlands are auctioned on contract annually for commercial fishing which supports a major fishery. Birds are disturbed day and night. Gill nets used by the fishermen have been shown to cause mortality in ducks. Cattle graze the areas around the lake. Local people encroach upon the main lake area, mainly for agriculture.

Simultaneously, poaching of wildfowl in these lakes has also increased dramatically. Various methods are used to trap and/or kill the birds. These include blinding of the bird with powerful searchlights and then clubbing them with a *lathi*. The tubers that the ducks eat are poisoned with Furatex, a common pesticide, and others use shotguns with their barrels sawn off.

The Shivalik Hills have lost their vegetation cover, hence have been severely eroded over the years. Much of its original habitat has degraded and is now barren. Exotic species like *Lantana camera*, are posing a big problem. Land is being used for agriculture and most of the soil gets washed away in the monsoon. Grazing of livestock further aggravates the problem. The silt load from the Shivaliks is filling other



ASAD R. RAHMANI

Punjab is mainly an agricultural dominated state so there are not many forested protective areas. Large mammals are mainly found in Bishnoi - dominated areas at the border of Punjab and Rajasthan. Black-buck and Chinkara (above) are found in large numbers in such areas. Nilgai is another antelope which is found in agricultural fields wherever it is not hunted due to sentiment

wetland IBAs such as Ropar Lake. This site needs to be surveyed to define the boundaries of IBAs within it.

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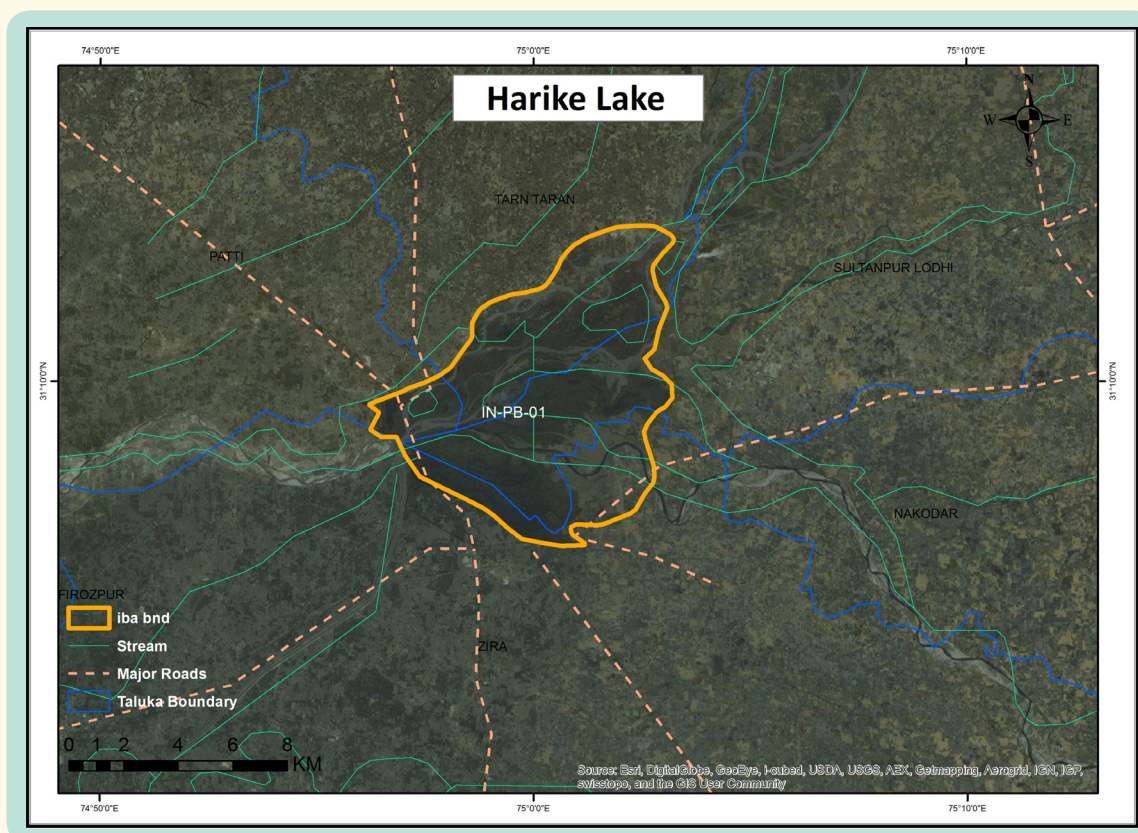
HARIKE LAKE BIRD SANCTUARY

IN-PB-01

IBA Site Code	: IN-PB-01	Altitude	: 210 msl
State	: Punjab	Rainfall	: 700 mm
District	: Amritsar, Kapurthala, Firozpur	Temperature	: 2 °C to 45 °C
Area	: 8,600 ha	Biogeographic Zone	: Semi-Arid
Ownership	: Private, Government	Habitats	: Freshwater Swamp
Coordinates	: 31° 18' 00" N, 75° 04' 60" E		(Reservoir)

IBA CRITERIA : A1 (Threatened species), A4i ($\geq 1\%$ biogeographic population), A4iii ($\geq 20,000$ waterbirds)

PROTECTION STATUS : Wildlife Sanctuary, established in 1982.



GENERAL DESCRIPTION

Harike Lake is a shallow water storage reservoir created by the construction of a barrage at Harike in 1952, at the confluence of the Sutlej and Beas rivers. It covers an area of c. 14,800 ha open water. About 33 islands are scattered throughout the lake. The water depth varies from 1.2 m to 4.2 m. The lake is surrounded by agricultural land and is the main source of water for the Indira Gandhi (Rajasthan) Canal.

The lake is triangular in shape, with its apex to the west, a bund called Dhussi Bund forming one side, a canal the second, and a major road the third. Harike Lake is a vital source of fish to Punjab (WWF, undated).

The National Committee on Wetlands, Mangroves,

and Coral Reefs of the Ministry of Environment and Forests, Government of India, has identified Harike Lake as one of the wetlands for special conservation action and management.

According to Ramsar criteria, Harike Lake qualifies for Criteria 2 (wetland supports threatened ecological communities), Criteria 5 (wetland regularly supports $\geq 20,000$ waterbirds), and Criteria 6 (wetland regularly supports 1% of the individuals in a population of one species or subspecies) (Islam & Rahmani 2008). It can be classified as Ramsar Wetland Type 6 (water storage reservoir).

More than 50% of the waterspread of this artificial waterbody is heavily infested with Water Hyacinth *Eichhornia crassipes*. This invasive species forms floating

islets throughout the lake. Thick stands of *Typha* are found at the margins. The embankments have been planted with *Dalbergia sissoo*, *Acacia nilotica*, *Ziziphus*, *Ficus*, and *Prosopis chilensis*.

AVIFAUNA

Harike Lake was designated as a Ramsar site on account of its importance as a habitat for large numbers and diversity of waterfowl (Ladhar *et al.* 1994), for which it is an important staging and wintering ground. Over 20,000 ducks have been counted at the peak of the migratory season. Flocks of 2,000–3,000 Red-crested Pochard *Rhodessa rufina*, Common Pochard *Aythya ferina*, and Tufted Pochard *Aythya fuligula* are not uncommon. A study conducted by the Bombay Natural History Society (1980–1985) recorded 167 species of resident and migratory birds. Scaup Duck *Aythya marila*, Falcated Teal *Anas falcata*, and the globally Threatened White-headed Duck *Oxyura leucocephala* have been reported. An updated list (Harvey 2002) contains 358 species, including some very old records such as the Little Bustard *Tetrax tetrax* that has not been seen in India for the last five decades or more. Long-tailed Duck *Clangula hyemalis* (Prasad 2008a), Horned Grebe *Podiceps auritus* (Prasad 2008b), and Common Goldeneye *Bucephala clangula* (Sangha 2013) are a few recent additions to the bird checklist of Harike Lake.

Although vultures were seen very often around Harike wetland in agricultural areas nearly 20 years ago, they are now extremely rare. However, we are including them in the table as they are likely to come back once diclofenac is totally banned.

The open water zone is very important for Near Threatened Oriental Darter *Anhinga melanogaster*, where more than 100 have been counted. According to Wetlands International (2012), its population in South Asia would be c. 4,000 and declining, therefore its 1% biogeographic population threshold is 40. The number recorded in Harike is more than 2% of its population. Similarly, many ducks are seen to exceed their 1% population threshold at Harike. Therefore, this site also qualifies for A4i criteria (the site is known or thought to hold, on a regular basis, $\geq 1\%$ of a biogeographic population of a congregatory waterbird species: BirdLife International, undated).

This site is also important for the Vulnerable Jerdon's Babbler *Chrysomma altirostre*, which is found here in unfragmented, long and dense grasslands, mainly *Phragmites* sp. and *Saccharum* sp. that cover islands in the wetland system. Sawant & Sudhagar (2013) recorded 33 individuals, which suggests that Harike Wetland could have a significant population of this species. The subspecies *C. a. indicum* is found there. BirdLife International (2014) states that this species is likely to be in rapid decline as a result of the extensive loss of its tall, wet grassland habitat, primarily owing to drainage, conversion to cultivation, and grazing by domestic livestock.

OTHER KEY FAUNA

Sinha (1997) reported 16 mammalian species from this IBA site, of which the Smooth Indian Otter *Lutra perspicillata* requires conservation measures. Other mammals include Jungle Cat *Felis chaus*, Golden Jackal



Tall grass in an around the Harike Lake is a good habitat for Rufous-vented Prinia *Prinia burnesii* (left) and Jerdon's Babbler *Chrysomma altirostre* (right)



DHITMAN MUKHERJEE

Since the construction of barrage at Harike in 1952 a large reservoir of open water covering 14,800 hectare has been created. This now serves as one of the finest wetland sanctuaries in north India

Canis aureus, Wild Boar *Sus scrofa*, and Common Mongoose *Herpestes edwardsi*. Freshwater turtles include *Kachuga tecta* and *Lissemys punctata andersoni*. About 26 species of fish have been recorded from the lake. The Endangered South Asian River Dolphin *Platanista gangetica minor* is also found in this IBA.

CRITICALLY ENDANGERED

White-rumped Vulture (old record)	<i>Gyps bengalensis</i>
Slender-billed Vulture (old record)	<i>Gyps tenuirostris</i>
Red-headed Vulture	<i>Aegypius calvus</i>

ENDANGERED

White-headed Duck	<i>Oxyura leucocephala</i>
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VULNERABLE

Lesser Adjutant	<i>Leptoptilos javanicus</i>
Pallas's Fish-eagle (old record)	<i>Haliaeetus leucoryphus</i>
Greater Spotted-eagle	<i>Clanga clanga</i>
Eastern Imperial Eagle	<i>Aquila heliaca</i>
Yellow-eyed Pigeon	<i>Columba eversmanni</i>
Indian Skimmer	<i>Rynchops albicollis</i>
Bristled Grassbird	<i>Chaetornis striatus</i>
Kashmir Flycatcher (stray record)	<i>Ficedula subrubra</i>
Jerdon's Babbler	<i>Chrysomma altirostre</i>

NEAR THREATENED

Oriental Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>
Oriental White Ibis	<i>Threskiornis melanocephalus</i>
Ferruginous Pochard	<i>Aythya nyroca</i>
Pallid Harrier	<i>Circus macrourus</i>
Rufous-vented Prinia	<i>Prinia burnesii</i>

LAND USE

- Fishing
- Grazing
- Water management
-

THREATS AND CONSERVATION ISSUES

- Invasive species (Water Hyacinth)
- Siltation
- Poaching
- Encroachment
- Untreated, toxic industrial waste effluents from nearby cities such as Ludhiana, Jalandhar, and Kapurthala
- Agriculture

The lake is infested with the invasive Water Hyacinth. Over 50% of the lake surface area is now covered with weeds. Eradication has been attempted but without success, as fresh infestation enters upstream.

Another major problem is that of siltation. Soil erosion is acute in the catchment area, causing the lake to silt up rapidly. The waterspread of the lake has reduced from 4,100 ha to 2,800 ha due to siltation and encroachment. Urban and industrial development in the vicinity of the lake and along its feeder streams is polluting the lake. Most of the catchment area is under cultivation, and the use of fertilizers and pesticides contributes to the pollution load in the lake. The entire lake is auctioned on contract annually for commercial fishing, and supports a major fishery. Birds are disturbed day and night. Gill nets used by the fishermen



DHIRTIMAN MUKHERJEE

Yellow-eyed Pigeon *Columba eversmanni* also known as Pale-backed Pigeon, is regularly seen around Harike lake. It is considered Vulnerable by IUCN and BirdLife International. Another species Sykes's Nightjar *Caprimulgus mahrattensis* has been found breeding in the area

have been shown to cause mortality in ducks. Cattle graze the areas around the lake. Local people are encroaching upon the main lake area primarily for agriculture purposes.

Poaching of wildfowl in the lake has also increased dramatically. Various methods are used to trap and/or kill birds. These include blinding the birds with powerful searchlights and then clubbing them with a *lathi* (stick). The tubers that the ducks feed upon are poisoned and others use shotguns with barrels sawn off.

The central government sponsored a pilot project for the setting up of a special ecological task force of ex-servicemen to cleanse and manage Harike Lake Wildlife Sanctuary. The Territorial Army was also involved in the process. The package was approved during a meeting in the year 2001 between the Punjab Chief Minister and Central leaders. Under this, the army launched Project Sahyog to check the degradation of the sanctuary.

In 2013, the Department of Forests and Wildlife Preservation, Punjab approved a project which aims to convert Harike wetland into an ecotourism destination. Although it is supposed to provide employment and income-generating activity to the locals, it will also have a negative impact on the lake.

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KANJLI LAKE

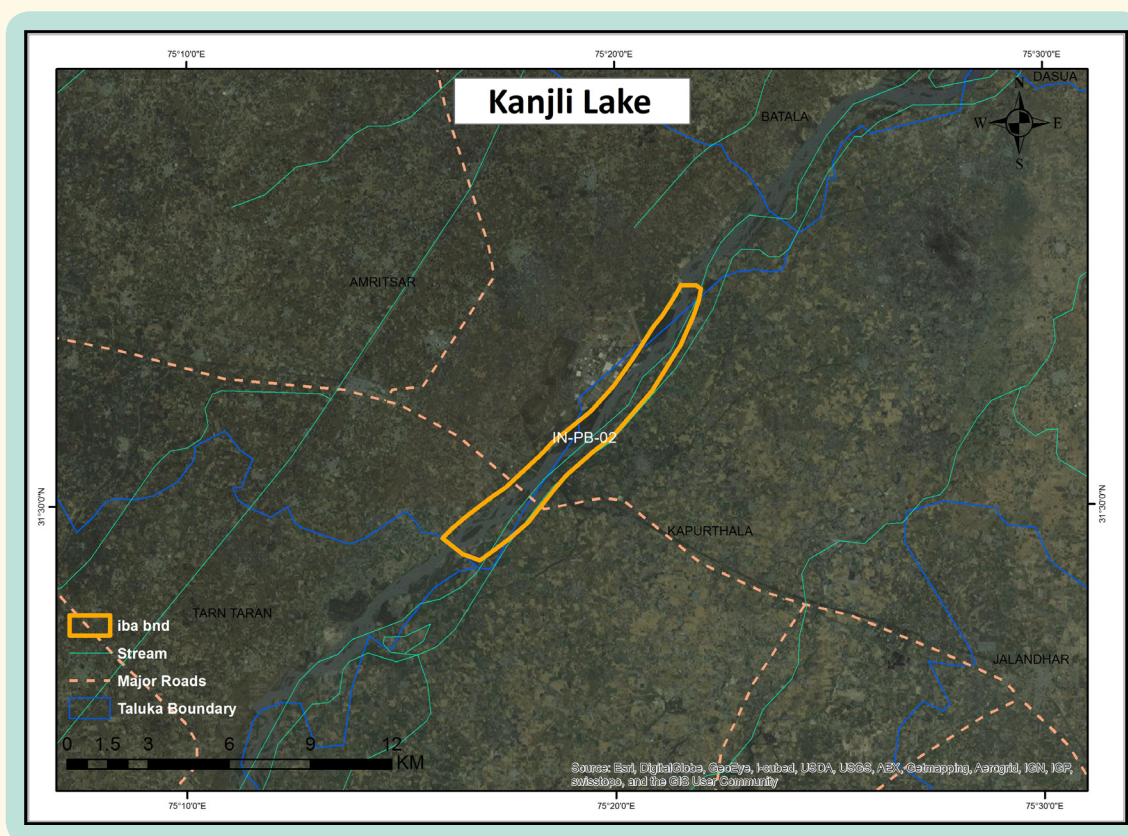
IN-PB-02

IBA Site Code	: IN-PB-02
State	: Punjab
District	: Kapurthala, Amritsar
Area	: 490 ha
Ownership	: State (Irrigation Department)
Coordinates	: 31° 34' 00" N, 75° 24' 50" E

Altitude	: 210 msl
Rainfall	: 2,000 mm
Temperature	: 2 °C to 45 °C
Biogeographic Zone	: Semi-Arid
Habitats	: Freshwater Swamp (Reservoir)

IBA CRITERIA : A4i (≥1% biogeographical population), A4iii (Congregation ≥20,000 waterbirds)

PROTECTION STATUS : Not officially protected.



GENERAL DESCRIPTION

Kanjli wetland, declared as a Ramsar Site in February 2002, is located on Kali Bein river, an important tributary of River Beas. It is located c. 4 km from the famous town of Kapurthala. This old lake came into existence in 1870, when a barrage was constructed on Kali Bein river. Kanjli is an irrigation reservoir. As water is used up for agricultural purposes, the water level goes down, creating a wetland habitat that attracts thousands of waterfowl and waders. Kanjli Lake is c. 20 km from Harike Lake, another IBA. The wetland is rich in aquatic flora, especially *Phragmites* and *Typha*.

Kanjli Lake qualifies for two Ramsar criteria: Criteria 5 (wetland regularly supports 20,000 or more waterbirds) and

Criteria 6 (wetland regularly supports 1% of the individuals in a population of one species or subspecies). It is classified as Ramsar Wetland Type 6 (water storage reservoir) (Islam & Rahmani 2008). The River Bein has great religious significance as it is associated with the founder of the Sikh religion, Guru Nanak Dev.

Although it is a very old wetland, conservation measures were initiated only about 25 years ago. A Five Year Plan for the conservation of this wetland was prepared in 1998–1999. The water quality conforms to Class B, but deteriorates to Class D during certain months when inflow of water is decreased considerably (Tiwana *et al.* 2008). Efforts have been made to control Water Hyacinth biologically, but they have not been successful.



DHRITIMAN MUKHERJEE

Kanjli lake is one of the earliest declared Ramsar Sites of India. It qualifies Ramsar Criteria 56. The lake came into existence when a barrage was constructed on Kali Bein River in 1870. it attracts more than 20,000 birds

AVIFAUNA

Not much is known about the birdlife of this important site, but the avifauna is not very different from the nearby Harike Lake (another IBA). According to WWF (undated), this wetland attracts a large number of resident and migratory birds, and also acts as an important staging ground for long distance migratory birds. The waterfowl include Northern Pintail *Anas acuta*, Northern Shoveller *Anas clypeata*, Mallard *Anas platyrhynchos*, Common Teal *Anas crecca*, Wigeon *Anas strepera*, Tufted Duck *Aythya fuligula*, and White-eyed Pochard or Ferruginous Duck *Aythya nyroca*. The total number of birds could reach 20,000.

According to Tiwana *et al.* (2008), c. 90 species of birds are found in and around this wetland.

OTHER KEY FAUNA

As this wetland is surrounded by human habitation, there is not much large terrestrial fauna, except for an occasional Golden Jackal *Canis aureus*.

LAND USE

- Irrigation
- Agriculture

THREATS AND CONSERVATION ISSUES

- Poaching
- Encroachment
- Invasive species (Water Hyacinth)

As in Harike, Kanjli wetland also suffers from the bane of invasive Water Hyacinth *Eichhornia crassipes*. Manual removal has been attempted, with unsatisfactory results as this pernicious weed flows in with the river water. As the wetland is surrounded by agricultural fields and human habitation, encroachment has been another threat. The Government of Punjab has now fenced the area to prevent further encroachment. Poaching of ducks is also a major problem but it can be controlled with effective patrolling and conservation education in the surrounding villages. An Environmental Library has been set up at Kanjli Lake for the general public.

KEY CONTRIBUTOR

Satnam Singh Ladhar.

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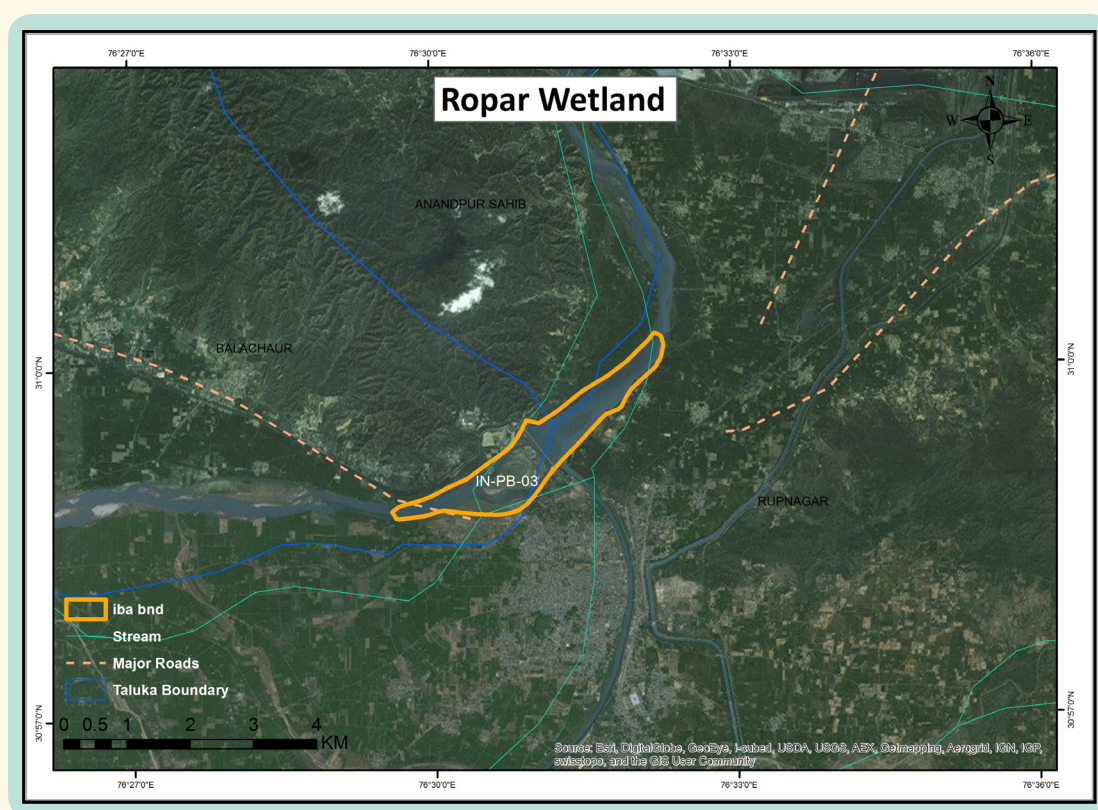
ROPAR WETLAND

IBA Site Code	: IN-PB-03	Altitude	: 1,500 msl
State	: Punjab	Rainfall	: 1,000 mm
District	: Ropar	Temperature	: 4 °C to 45 °C
Area	: 1,365 ha	Biogeographic Zone	: Semi-arid
Ownership	: State	Habitats	: Freshwater Swamp
Coordinates	: 30° 56' 30" N, 76° 27' 00" E		(Reservoir)

IN-PB-03

IBA CRITERIA: Ropar does not qualify for any criteria as of now, but has potential as a wintering ground for migratory birds and may meet the A4iii criterion if habitat is restored.

PROTECTION STATUS : Not officially protected.



GENERAL DESCRIPTION

Ropar Wetland was created in 1952 with the construction of the Bist-Doab canal which receives water from its head works on the Sutlej river near Ropar town. It is a reservoir surrounded by marshy margins dominated by large stands of *Phragmites*. Located at the Shivalik foothills, the wetland receives a large silt load from the eroded hills. The lake lies in the Hoshiarpur-Chandigarh sub-montane plain region. The depth of the lake varies from 0.5 m to 6 m. A few shallow waterbodies along both sides of the river are located within the wetland area. The area has been declared as a reserve forest and is under the control of the Punjab State Government. The wetland experiences semi-arid monsoon climate with average annual rainfall of c. 1,000 mm. Under

the National Wetlands Programme of the Ministry of Environment and Forests, Government of India, the Ropar wetland has been selected for inclusion in the list of wetlands of national importance. In February 2002, it was declared as a Ramsar Site. It is Ramsar Wetland Type O (permanent freshwater lake) and 6 (water storage reservoir) (Islam and Rahmani 2008).

When it was declared as a Ramsar Site, it was in a better condition and could qualify Ramsar Criteria 5 (wetland regularly supports 20,000 or more waterbirds) and 6 (wetland regularly supports 1% of the individuals in a population of one species or subspecies) but now it has deteriorated and may not qualify these criteria. Urgent restoration work is required.

The edge of the wetland is characterized by thorny bushes, reeds, grasses, sedges and trees. Water Hyacinth *Eichhornia crassipes* has invaded the wetland.

AVIFAUNA

About 154 species of birds have been identified till now (WWF, undated). It serves as an important staging ground for a number of migratory birds, but detailed studies are lacking. Currently, the wetland supports birds numbering a few thousands, not enough to meet any IBA criteria. However, it has the potential of housing over 20,000 waterbirds, after restoration work has been undertaken. In November 2013, a Bar-headed Goose *Anser indicus* with H55 tag was spotted at Ropar lake by Parbhat Bhatti.

OTHER KEY FAUNA

As the lake is surrounded by agricultural fields and human habitation, large mammals are absent, except for Wild Boar *Sus scrofa* and Bluebull or Nilgai *Boselaphus tragocamelus*, both of which are destructive to crops. Sambar *Cervus unicolor*, Hog Deer *Axis porcinus*, and Smooth Indian Otter *Lutra perspicillata* are reported to be present but the report needs confirmation. A total of 35 species of fish are found, many of commercial value.

Sharma (2014) reported a Wavy Palm Eggfly, *Elymnias hypermnestra undularis* from Ropar lake, which is now the western limit of its known distribution. The previous record was considered to be from Paonta Sahib, Himachal Pradesh.

LAND USE

- Water management
- Forestry

THREATS AND CONSERVATION ISSUES

- Siltation
- Invasive species
- Poaching

The wetland is choked with fly ash from a thermal power plant in its vicinity. Sutlej river is surrounded by hills; hence the runoff ends up in Ropar wetland. This is the major cause of siltation. Natural calamities like landslides add to this problem. The wetland has also been invaded by the exotic weeds Water Hyacinth *Eichhornia* sp. and *Parthenium*

sp. There is very little suitable habitat left for the birds, which too will gradually fill up with silt from the power plant. On top of all that, cattle grazing has been observed in some parts of the wetland. Excess pesticides from nearby agricultural lands find their way into this wetland. The persistent organic pollutants (POPs) can cause some serious ecological imbalance. The wetland, though badly degraded, has been nominated as a Ramsar Site. It is in immediate need of restoration.

This IBA has great potential to be developed as an excellent birdwatching area. It is easy to reach and a tourist complex located inside the wetland offers facilities. Since this wetland is an important source of fisheries, it is significant from the economic point of view of Punjab (WWF, undated).

Ever since the inclusion of Ropar wetland as a Wetland of National Importance by the Ministry of Environment and Forests, Government of India, the Punjab State Council for Science and Technology has taken some initiatives to improve the wetland to make it more suitable for birds and tourists. However, these measures are not enough. A holistic management plan, based on scientific research, is required to make this wetland truly a Ramsar Site – important both for waterfowl and for the state's economy.

KEY CONTRIBUTORS

Neelima Jerath, Supriya Jhunjunwala.

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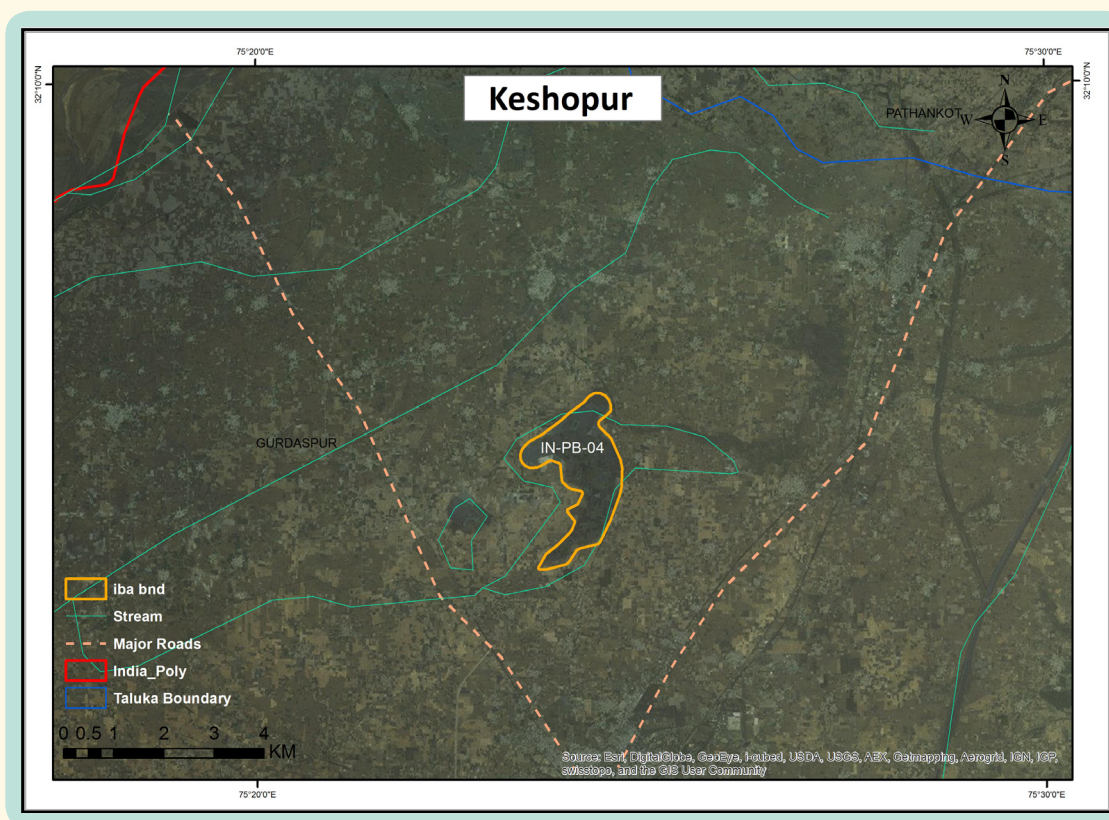
KESHOPUR MIANI [OR CHHAMB] COMMUNITY RESERVE

IBA Site Code	: IN-PB-04	Coordinates	: 32° 05' 13.5" N, 75° 24' 15.2" E
State	: Punjab	Altitude	: 245 msl
District	: Gurdaspur	Rainfall	: 1,125 mm
Area	: 340 ha	Temperature	: ???
Ownership	: Gram Panchayat (Village Council)	Biogeographic Zone	: Semi-arid
		Habitats	: Wetland

IN-PB-04

IBA CRITERIA: A1 (Threatened species), A4iii ($\geq 20,000$ waterbirds)

PROTECTION STATUS: Community Reserve, declared June, 2007.



GENERAL DESCRIPTION

Keshopur Community Reserve is a dynamic freshwater ecosystem in Gurdaspur district. The ecological boundaries of this ecosystem extend much beyond boundaries of the community reserve and the entire tract serves as an important habitat for many migratory birds. This area was declared as a community reserve following a Punjab Government notification No. 34/13/2007/Ft-V/6133 dated 25 June 2007 (Rajasekar *et al.* 2008)

The reserve comprises freshwater marshes that cover an area of 340 ha, and is an important waterfowl habitat and migratory bird corridor during winter. The entire community reserve is on two marshes owned by five *panchayats* (village councils), Miani (161.87 ha), Dalla

(61.51 ha), Keshopur (55.04 ha), and Matwa (20.64 ha) as a contiguous block, and Magarmudian (44.92 ha) as a separate patch. Currently, 83% of the total area of the community reserve is under human use in the form of fish ponds, and cultivation of lotus and *Trapa* through long-term leases.

Keshopur wetland is part of the famous wetlands and marshlands, locally known as *chhamb*s, that dotted all the low lying areas of Punjab and were famous waterfowl shooting areas, about 100 years ago. There are old records of swans being shot in the Beas river. Sadly, most of these wetlands have now been converted into agriculture fields, except a few remnants like Keshopur.

AVIFAUNA

A total of 146 species of birds were recorded from Keshopur wetland (Mehta 2012). Out of 146 recorded species, 83 are resident and 58 are migratory. In January 2007, scientists of the BNHS conducted Asian Wetland Census and noted 45 species of waterbirds. In a study from January 2013 to June 2014 (Mehta 2012), the highest number of birds was recorded in January and the lowest number in June, when the lake is almost dry. About 30,000-40,000 migratory birds have been estimated in winter, including 13 species of ducks and 16 species of stints, sandpiper, and plovers (small waders). Among storks, the Vulnerable Asian Woollyneck *Ciconia episcopus* and Near Threatened Painted Stork *Mycteria leucocephala* have been photographed. A few pairs of Sarus Crane *Grus antigone* breed in the area.

Occasionally, White-rumped Vulture *Gyps bengalensis* is seen singly or in small flocks. However, Egyptian Vulture *Neophron percnopterus* is seen much more often, particularly around villages and garbage dumps. The Greater Spotted Eagle *Clanga clanga* is mostly seen near marshes as it mainly feeds on waterfowl and other birds.

CRITICALLY ENDANGERED

White-rumped Vulture	<i>Gyps bengalensis</i>
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ENDANGERED

Egyptian Vulture	<i>Neophron percnopterus</i>
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VULNERABLE

Sarus Crane	<i>Grus antigone</i>
Asian Woollyneck	<i>Ciconia episcopus</i>
Greater Spotted Eagle	<i>Clanga clanga</i>
Indian Spotted Eagle	<i>Aquila hastata</i>

NEAR THREATENED

Oriental Darter	<i>Anhinga melanogaster</i>
Ferruginous Duck	<i>Aythya nyroca</i>
Pallid Harrier	<i>Circus macrourus</i>
Painted Stork	<i>Mycteria leucocephala</i>
Black-headed Ibis	<i>Threskiornis melanocephalus</i>
Black-tailed Godwit	<i>Limosa limosa</i>
Alexandrine Parakeet	<i>Psittacula eupatria</i>

OTHER KEY FAUNA

As this community reserve is surrounded by villages and farmlands, not many wild animals are found. Nilgai *Boselaphus tragocamelus* and Golden Jackal *Canis aureus* are the noteworthy wild mammals.

LAND USE

- Cultivation
- Pisciculture

The present status of its conservation revealed that Keshopur wetland, like several other non-protected wetlands

of Punjab, is under huge biotic pressure. Earlier, the wetland spread across thousands of acres, but due to encroachment and drainage, only about 121.41 ha is now left. Through their sustained efforts, forest officials have managed to reclaim some of this area and today the wetland extends over c. 343.98 ha.

Five village *panchayats* owning the area have leased out 89.03 ha to fish farmers for a meagre Rs 1,000 per acre (=0.40 ha) per year. The fish farmers have hired labour to scare away birds. They also use diesel engines to pump water, which creates pollution and noise. The pumps also need maintenance, as a result of which there is constant movement of people in the area. The wetland dries up in summer, so it is easy to dig up ponds in the otherwise marshy areas (Mehta 2012). During monsoon, the wetland is leased to farmers to grow Lotus and Water Chestnut (*singhara*) that creates further problems for resident birds.

THREATS AND CONSERVATION ISSUES

This wetland is surrounded by agriculture, hence there is a continuous threat of encroachment. Pollution due to excess pesticides and fertilizers used in agricultural fields is another problem. Water Hyacinth *Eichhornia crassipes*, an exotic species, has invaded this wetland (Ghuman 2009).

In February 2014, the Punjab Chief Minister visited the site and recommended that Keshopur Chhamb Bird Sanctuary should be developed as a tourist destination. The prospects of tourism would generate new employment opportunities for the residents of nearby villages. In order to develop facilities for tourists, funds have already been allocated. He also said that the services of experts from across the globe must be sought for developing the place as an ideal tourist spot.

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